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Gold(III) Complex of Caffeine: Synthesis, Isolation and Spectroscopic Characterization

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Abstract: Au(III)-caffeine complex was synthesized and characterized by means of solid-state linear-dichroic infrared spectral analysis (IRLD), ^{1}H-NMR, MS, DSC and TGA methods. The caffeine (I) is monodentate and coordinated with metal ion through its N9 atom at molar ratio metal to ligand 1:1. The other 3 positions in the Au(III) coordination sphere are occupied by Cl^{-}, thus forming [$Au^{3+}(C_8H_{10}N_4O_2)Cl_3$] complex. IR-characteristic band assignment in the 4000-400 cm^{-1} IR region of pure ligand and corresponding Au(III)complex was performed.

Key Words: Caffeine, gold(III)-complex, IR-LD spectroscopy, ^{1}H-NMR

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